

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A chemical mechanical planarization abrasive composition, which comprises non-polymeric organic particles as an abrasive material, 0.1-10 w/w% of an oxidizing agent and a solvent in the form of a slurry, wherein the non-polymeric organic particles contain at least one functional group selected from the group consisting of amino, amido and metal salt thereof, and wherein said non-polymeric organic particles have an average particle size of less than 1 μm inherently have an intermolecular hydrogen bonding property.

2. (Original) The abrasive composition according to claim 1, wherein the non-polymeric organic particles consist essentially of at least one compound selected from the group consisting of melamine and a derivative thereof.

3-4. (Canceled)

5. (Currently Amended) The abrasive composition according to ~~claim 3~~, claim 1, wherein essentially all of said particles have a size distribution between +75% and -75% of the average particle size.

6. (Currently Amended) The abrasive composition according to ~~claim 3~~, claim 1, wherein the solvent is soft water, the non-polymeric organic particles are present in a concentration of 0.001

– 20 w/w %, and the slurry further comprises 0.05 – 10 w/w % of a chelating agent, 0.01 – 10 w/w % of a surfactant, and 0 – 10 w/w % of a passivation agent.

7. (Original) The abrasive composition according to claim 6, wherein the slurry has a pH in the range of 2 – 12.

8. (Original) The abrasive composition according to claim 6, wherein the oxidizing agent is at least one selected from the group consisting of peroxide, chlorate, chlorite, perchlorate, bromate, bromite, perbromate, nitrate, persulfate, iodate, permanganate and hypochlorite.

9. (Original) The abrasive composition according to claim 6, wherein H_2O_2 is the oxidizing agent and is present in an amount of 0.1 – 6 % w/w.

10. (Previously presented) The abrasive composition according to claim 6, further comprising a complexing agent which is at least one selected from the group consisting of polyamine, polyaminocarboxylic acid and an amino acid.

11. (Previously presented) The abrasive composition according to claim 10, wherein the complexing agent is an amino acid.

12. (Original) The abrasive composition according to claim 6, wherein the surfactant is a nonionic surfactant.

13. (Original) The abrasive composition according to claim 6, wherein the surfactant is at least one selected from the group consisting of an alkylated polyethylene oxide, an alkylated cellulose, an alkylated polyvinyl alcohol, an alkyl carboxylic acid, an aryl carboxylic acid, a sulfate salt and an ammonium salt.

14. (Original) The abrasive composition according to claim 6, wherein the slurry further comprises at least one of inorganic abrasive particles and polymeric abrasive particles.

15. (Original) The abrasive composition according to claim 14, wherein the slurry further comprises polymeric abrasive particles and said polymeric abrasive particles are formed by combining a substituted or unsubstituted formaldehyde, and at least one of (a) a substituted or unsubstituted melamine, (b) a substituted or unsubstituted urea, (c) a substituted or unsubstituted phenol and (d) a substituted or unsubstituted resorcinol.

16. (Original) The abrasive composition according to claim 14, wherein the slurry further comprises inorganic abrasive particles which are at least one selected from the group consisting of SiO₂, Al₂O₃, ZrO₂, CeO₂, SiC, Fe₂O₃, TiO₂, Si₃N₄ and diamond.

17. (Original) The abrasive composition according to claim 6, wherein the passivation agent is at least one selected from the group consisting of benzotriazole, benzothiazole, 1 H-benzotriazoleacetonitrile, benzotriazole-5-carboxylic acid, 2(3H)-benzothiazolone, and 1 H-benzotriazole-1-methanol.

18. (Currently Amended) A chemical mechanical planarization process, which comprises: applying to a surface of a semiconductor ~~the chemical~~ a chemical mechanical planarization abrasive slurry composition ~~of claim 1~~ which comprises non-polymeric organic particles as an abrasive material, 0.1-10 w/w% of an oxidizing agent and a solvent.

19. (Previously Presented) The chemical mechanical planarization process of claim 18, wherein the solvent is soft water, the non-polymeric organic particles are present in a concentration of 0.001 – 20 w/w %, and the slurry further comprises 0.05 – 10 w/w % of a chelating agent, 0.01 – 10 w/w % of a surfactant, and 0 – 10 w/w % of a passivation agent.

20. (Canceled)

21. (Previously Presented) The chemical mechanical planarization process of claim 18, wherein the composition of the surface of the semiconductor comprises copper and the slurry further comprises inorganic abrasive particles.

22. (Canceled)

23. (Previously Presented) The chemical mechanical planarization process of claim 18, further comprising a preliminary step of reducing the size of the abrasive non-polymeric organic particles in the presence of an anionic surfactant prior to combining the abrasive non-polymeric organic particles in the chemical mechanical planarization abrasive slurry composition.